

# Investigation of Relationship between Sources of Self-efficacy Beliefs of Secondary School Students and Some Variables

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## Abstract

The purpose of this study was to investigate the relationship between students' opinions about the sources of self-efficacy belief and their gender, academic achievement, the grade level, Socio-Economic Status (SES), and learning style. The study was conducted on 984 secondary school students in the fall semester of the 2011-2012 academic year. The data were collected by the scale of determining sources of self-efficacy belief, the scale of learning styles, the scale of self-efficacy belief related learning and performance which is subscale of MSLQ and personnel information form. The results of the study indicated that there were significant relationships between students' opinions about sources of self-efficacy related learning and performance and their gender, academic achievement, SES, the grade level, and learning style.

## Key Words

Sources of Self-efficacy, Self-efficacy Belief, Secondary School, Academic Achievement, SES, Learning Style, Gender.

One of the affective characteristics of students that mediate their cognitive and psychomotor learning processes is self-efficacy belief. Self-efficacy is the belief that individuals can control their behavior in attaining the goals that they set for themselves (Bandura, 1997).

Bandura (1994) contended that four factors increase self-efficacy. *Mastery experiences* is past performances of students and the factor that provides the most realistic information to individuals on being able to deal with new encountered situations. While students' successful performances increase their self-efficacy beliefs, the unsuccessful performances decrease their self-efficacy beliefs. *Vicarious experience* is observation of students their classmates. While

students' observation of their friends' successful performances increases their self-efficacy belief; observation of their failures causes them to think that they are going to be unsuccessful. According to social learning theory, students who observe models are expected to acquire their emotions. In this respect, their friends' low or high self-efficacy beliefs affect students' self-efficacy beliefs as well. *Social persuasion* is to inform students explicitly that they can achieve the tasks assigned by their social environment. *Emotional state* is perceived class environment. While class environments where students do not feel comfortable decrease their self-efficacy belief, class environments that are collaborative and support learning increase students' self-efficacy belief (Bandura, 1994).

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The purpose of this study was to investigate the relationship between students' opinions about the sources of their self-efficacy beliefs and their gender, academic achievement, the grade level, SES, and their learning styles. It is necessary that we know the factors that increase self-efficacy belief to regulate educational setting accordingly. The factors affecting self-efficacy belief can vary among individuals. Identification of the most effective factors that have effects on the self-efficacy belief of students is important for teachers to organize instructional activities. So, teachers can behave to students accordingly for increasing their self-efficacy. In below, it was examined relationship between self-efficacy and academic achievement, gender, SES and learning style.

### Academic Achievement

One of the learning outcomes is the academic achievement. Academic achievement and self-efficacy reciprocally effect each other. Self-efficacy is an important predictor of academic achievement (Multon, Brown, & Lent, 1991). Likewise, academic achievement (enactive mastery experience) is the most powerful source of self-efficacy (Arslan, 2012; Bandura, 1997; Britner & Pajares, 2006; Hampton, 1998; Usher & Pajares, 2006b). The relationship between gender differences and the sources of self-efficacy have been examined in many studies. While it was found there wasn't relationship gender and the sources of self-efficacy. It was found by Usher and Pajares (2006b) that the predictors of the self-efficacy beliefs of high achievers are mastery experience and physiological state; the predictors of the self-efficacy beliefs of medium achievers are mastery experience and social persuasion; and none source predicted the self-efficacy beliefs of low achievers.

### Socio-Economic Status

SES is level of wealth, power and prestige which people own. Sociologists divide individuals into upper class, middle class, working class and lower class (Moreno, 2010). SES effects students' academic achievements. High-SES students get higher scores from low-SES students (Barry, 2005). At the same time, parental facilities and their education have influence on self-efficacy of students (Eccles & Davis-Kean, 2005). Learned helplessness may be seen in low-SES children. That it, these students may believe they can never overcome schoolworks (Woolfolk, 2001). Therefore, the sources of self-

efficacy from different SES students must be researched and how to increase must be considered.

### Gender

In various subjects, boys and girls have different self-efficacy levels. So, to know the sources of self-efficacy of girls and boys helps teachers to adjust their learning environments for increasing their students' self-efficacy in these areas. The relationship between gender differences and sources of self-efficacy have been examined in many studies. While it was found there wasn't relationship gender and sources of self-efficacy (Klassen, 2004; Lent, Lopez, & Bieschke, 1991; Matsui, Matsui, & Ohnishi, 1990; Stevens, Wang, Olivarez, & Hamman, 2007) there was a significant relationship in some studies (Britner & Pajares, 2006; Hampton & Mason, 2003; Joet, Usher, & Bressoux, 2011; Lent, Lopez, Brown, & Gore, 1996; Lopez & Lent, 1992; Lopez, Lent, Brown, & Gore, 1997; Usher & Pajares, 2006b). In this study, it was examined which sources are more appropriate for boys and girls.

### Learning Style

Learning style is different ways which students own while learning a subject (Slavin, 2006). In Neuro-Linguistic Programming (NLP), three learning styles were proposed. Visual learners learn by seeing and use diagrams, tables, graphs, maps, posters. Auditory learners learn by listening and discussion, lectures, interviewing, hearing stories and audio tapes is appropriate for these. Kinaesthetic learners learn by doing and like physical activity (Pritchard, 2009). To explore relationship between sources of self-efficacy and learning styles ease teachers' instructional affairs in increasing students' self-efficacy. Before the study was conducted, it was estimated verbal persuasion was more appropriate for auditory learners, vicarious experience was more appropriate for visual learners, mastery experience was more appropriate for kinaesthetic learners and psychological state was more appropriate for all of them.

As well, there are studies that reveal the relationship between ethnic origin (Klassen 2004; Smith, 2001; Stevens, Olivarez, & Hamman, 2006; Usher & Pajares, 2006a, 2006b), and the academic level (Pajares, Johnson, & Usher, 2007), teachers' social behaviors (White, 2009) and the sources of self-efficacy belief. There isn't any study examining the relationship between sources of self-efficacy and individual differences in Turkey.

This study examines whether there is a significant relationship between the sources of self-efficacy and students' grade levels, SES, and their learning styles, their gender and academic achievements. So, problems of this study are:

1. Do students' opinions about sources of self-efficacy change depending on gender, academic achievement, grade level, SES, and learning styles?
2. Does predictive power of these sources on self-efficacy related learning and performance change depending on gender, academic achievement, grade level, SES, and learning styles?

## Method

### Design

This was a correlational study. Correlation studies make an attempt to determine the level of relationship between the two variables tested. Correlations help us to estimate a variable on the basis of the other variable (Jackson, 2006). Firstly, gender, SES, grade level, and achievement were used as an independent variable; sources of self-efficacy were used as a dependent variable in this study. Later, sources of self-efficacy were designated as a predictor of self-efficacy belief related learning and performance.

### Participants

The participants in the study were 984 secondary school students in Zonguldak, Turkey. These students were easily accessible for researcher and appropriate for aim of study. So, the participants were selected by convenience sampling method. 51.1% of the students were composed of females, 48.9% of males. Also 31.4% of the students was composed of 6<sup>th</sup> graders, 37.6% of 7<sup>th</sup> graders, and 31% of 8<sup>th</sup> graders. 35.4% of the students was from a lower SES, 54.2% from a medium, and 10.4% from a high SES. 25.6% of the students has a low achievers, 39.1% has a medium achievers, and 35.3% has a high achievers. In grouping students according to achievement, criterion was their achievement certification given from school.

### Instruments

**Personal Information Form:** In this form, there were options about students' gender, academic achievement, SES, and the grade level.

### Scale of Determining Sources of Self-efficacy Belief:

The scale was developed by the Arslan (2012) with the aim of exploring secondary school students' opinions about sources of their self-efficacy beliefs. Scale was totally 12 items. 5 point Likert (1=never, 2=seldom, 3=sometimes, 4=often, 5=always) was used in scale. The factor loadings of items of mastery experience were between 0.74-0.78. An example item was "to accomplish the given tasks increases my belief I can learn the lesson". The reliability coefficient of was calculated as a 0.71 in this study. The factor loadings of items of vicarious experience were between 0.72-0.79. An example item was "to observe the successes of my friends increases my belief I can learn the lesson". The reliability coefficient of factor was calculated as a 0.76 in this study. The factor loadings of items of social persuasion were between 0.64-0.82. An example item was "if my teacher encourages me, my belief I can learn the lesson increases". The reliability coefficient of factor was calculated as a 0.75 in this study. The factor loadings of items were physiological state between 0.71-0.74. An example item was "when I feel comfortable in the lesson, my belief I can learn the lesson increases". The reliability coefficient of factor was calculated as a 0.72 in this study.

**Scale of Learning Styles:** The scale was developed by Gökdağ (2004). For validity of scale, factor analysis was conducted and factor loadings of items which is above 0.40 were selected. In this study, the reliability of the visual learning style was calculated as a 0.71; the reliability of the auditory learning style as a 0.62; and the reliability of the kinesthetic learning style as a 0.67. 5 point Likert (1=never, 2=seldom, 3=sometimes, 4=often, 5=always) was used in scale.

### Scale of Self-efficacy Belief Related Learning and Performance:

In order to reveal student opinions about self-efficacy belief related learning and performance, the study used the "scale for self-efficacy related learning and performance" a subscale of "Motivated Strategies for Learning Questionnaire (MSLQ)", that was developed by Pintrich, Smith, Garcia, and McKeachie (1991) and adapted into Turkish by Büyüköztürk, Akgün, Özkahveci, and Demirel (2004). The scale is composed of 8 items. Items were rated on a 7-point response scale ranging from 1 (not at all) to 7 (very much). The corrected item-total correlation coefficient of items varied between 0.52 and 0.65. The reliability coefficient of the measurement results of the scale was calculated as a 0.86 in translated study, as a 0.89 in this study.

## Analysis of Data

In order to determine whether students' opinions on if the sources of self-efficacy belief change or not depending on various student characteristics, "MANOVA"; for correlation, "Pearson product-moment correlation" and "regression analysis" were conducted for each variable separately.

## Results

The findings obtained from analysis are presented separately for each independent variable in below.

### Gender

This section examines whether or not the students' opinions about the sources of self-efficacy belief change depending on their gender. In a result of the statistical analysis, it was found that the students' opinions about the sources of self-efficacy belief change depending on their gender (Wilk's Lambda= 0.964,  $F=9.083$ ,  $p<0.05$ ). In order to determine difference in which factor, ANOVA was conducted. The findings are presented in the Table 1.

According to the Table 1, students' opinions about the sources of self-efficacy belief change depending on their gender. While it was observed that students' opinions about that mastery experience ( $\bar{X}_{\text{female}}:4.744$ ;  $\bar{X}_{\text{male}}: 4.553$ ), social persuasion ( $\bar{X}_{\text{female}}:4.749$ ;

$\bar{X}_{\text{male}}:4.596$ ), and physiological state ( $\bar{X}_{\text{female}}:4.567$ ;  $\bar{X}_{\text{male}}: 4.432$ ) change depending on gender, no significant difference was found for the vicarious experience ( $\bar{X}_{\text{female}}:4.092$ ;  $\bar{X}_{\text{male}}: 4.040$ ). In other words, female students expressed more often than males that mastery experience, social persuasion, and physiological state increase their self-efficacy beliefs related learning and performance.

The study also investigated the relationship between male and female students' opinions about the sources of self-efficacy belief and self-efficacy related learning and performance; and the predictive power of these sources on self-efficacy-belief. The findings are presented in the Table 2.

According to the Table 2, while the predictors of male students' self-efficacy belief are mastery experience, vicarious experience, and social persuasion; the predictors of female students' self-efficacy belief are mastery experience and vicarious experience. While social persuasion predicts male students' self-efficacy belief, it is not a predictor of female students' self-efficacy belief. The physiological state is not a predictor of neither self-efficacy belief of males nor females.

### Academic Achievement

This section examines whether or not students' opinions about the sources of self-efficacy belief change depending on their academic achievement.

**Table 1.**  
Table of ANOVA for Gender

Factor		$\bar{X}$	sd	F	Difference	Effect Size
Mastery Experience	Male	4.553	0.599	3.126*	In favor of female	0.031
	Female	4.744	0.470			
Vicarious Experience	Male	4.040	0.878	0.805	-	
	Female	4.092	0.947			
Social Persuasion	Male	4.596	0.633	16.654*	In favor of female	0.017
	Female	4.749	0.536			
Physiological State	Male	4.432	0.711	9.249*	In favor of female	0.009
	Female	4.567	0.702			

\* $p<0.05$

**Table 2.**  
Table of Correlation and Regression for Gender

Factor	Male			Female		
	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t
Mastery Experience	0.609**	0.371	10.880	0.620**	0.384	16.188
Vicarious Experience	0.410**	0.024	3.742	0.276**	0.010	2.835
Social Persuasion	0.435**	0.008	2.461	0.424**	-	-
Physiological State	0.292**	-	-	0.259**	-	-
Total		0.403			0.394	

Dependent variable: Self-efficacy related learning and performance; R<sup>2</sup>= Explained variance by each variable; r= Correlation coefficient; \*\* $p<0.01$

In a result of the analysis, it was found that students' opinions about the sources of self-efficacy belief change depending on academic achievement (Wilks's Lambda = 0.865,  $F=18.358$ ,  $p<0.05$ ). In order to determine difference in which factor, ANOVA was conducted. The findings are presented in the Table 3.

When the Table 3 is examined, it can be noticed that students' opinions about the sources of self-efficacy belief change depending on their academic achievements. While high achievers stated more often

The study also compared students' opinions about sources of self-efficacy belief with the predictive power of these sources on students' self-efficacy related learning and performance on the basis of their academic achievements. The predictive power of the sources of students' self-efficacy beliefs on self-efficacy related learning and performance according to their academic achievements is presented in Table 4.

When the Table 4 is examined, it can be seen that while the predictors the self-efficacy beliefs of low

**Table 3.**  
*Table of ANOVA for Academic Achievement*

Factor	Achievement	$\bar{X}$	Sd	F	Difference	Effect Size
Mastery Experience	High	4.830	0.424	67.377 <sup>*</sup>	Between high and medium- low, in favor of high: Between medium and low, in favor of medium	0.121
	Medium	4.688	0.645			
	Low	4.345	0.666			
Vicarious Experience	High	4.196	0.991	6.994 <sup>*</sup>	Between high and low, in favor of high	0.014
	Medium	4.045	0.888			
	Low	3.915	0.852			
Social Persuasion	High	4.826	0.475	13.269 <sup>*</sup>	Between high and medium- low, in favor of high: Between medium and low, in favor of medium	0.077
	Medium	4.713	0.493			
	Low	4.407	0.754			
Physiological State	High	4.632	0.668	6.174 <sup>*</sup>	Between high and medium- low, in favor of high: Between medium and low, in favor of medium	0.026
	Medium	4.488	0.694			
	Low	4.342	0.697			

<sup>\*</sup> $p < 0.05$

than the medium achievers and low achievers that their mastery experience ( $\bar{X}_{\text{high}}$ : 4.830;  $\bar{X}_{\text{medium}}$ : 4.688;  $\bar{X}_{\text{low}}$ : 4.345), social persuasion ( $\bar{X}_{\text{high}}$ : 4.826;  $\bar{X}_{\text{medium}}$ : 4.713;  $\bar{X}_{\text{low}}$ : 4.407), and physiological state ( $\bar{X}_{\text{high}}$ : 4.632;  $\bar{X}_{\text{medium}}$ : 4.488;  $\bar{X}_{\text{low}}$ : 4.342) increase their self-efficacy beliefs related learning and performance; medium achievers stated more often than the low achievers that mastery experience, social persuasion, and physiological state increase self-efficacy related learning and performance. As for vicarious experience, there was a significant difference observed only between high achievers ( $\bar{X}_{\text{high}}$ : 4.196) and low achievers ( $\bar{X}_{\text{low}}$ : 3.915), which was in favor of high achievers.

and high achievers are mastery experience and vicarious experience; the predictors of medium achievers are social persuasion as well as mastery experience. Physiological state was not a predictor of self-efficacy belief for students at any academic achievement level.

### Grade Level

This section examines whether or not the students' opinions about sources of self-efficacy belief changes depending on their grade levels. In a result of the analysis, it was found that the student

**Table 4.**  
*Table of Correlation and Regression for Academic Achievement*

	Low			Medium			High		
	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t
Mastery Experience	0.641 <sup>**</sup>	0.411	9.905	0.399 <sup>**</sup>	0.159	6.700	0.619 <sup>**</sup>	0.384	12.595
Vicarious Experience	0.467 <sup>**</sup>	0.028	3.549	0.177 <sup>**</sup>	-	-	0.379 <sup>**</sup>	0.030	4.220
Social Persuasion	0.406 <sup>**</sup>	-	-	0.279 <sup>**</sup>	0.016	2.692	0.412 <sup>**</sup>	-	-
Physiological State	0.287 <sup>**</sup>	-	-	0.206 <sup>**</sup>	-	-	0.251 <sup>**</sup>	-	-
Total		0.439			0.175			0.414	

Dependent variable: Self-efficacy related learning and performance; R<sup>2</sup>= Explained variance by each variable; r= Correlation coefficient; <sup>\*</sup> $p < 0.01$

opinion about sources of self-efficacy belief changes depending on their grade levels. (Wilk's Lambda= 0.955,  $F= 5.656$ ,  $p<0.05$ ). In order to determine difference in which factor, ANOVA was conducted. The findings are presented in the Table 5.

When the Table 5 is examined, it can be seen that among the sources of self-efficacy belief, student's opinions about mastery experience, vicarious experience, social persuasion change depending on grade level; and that only the students' opinions about the physiological state does not change depending on grade level.

mastery experience, vicarious experience, and social persuasion increase self-efficacy belief.

The predictive power of the sources of students' self-efficacy belief on self-efficacy belief related learning and performance was examined comparatively depending on their grade levels. The findings presented in the Table 6.

When the Table 6 is examined, it will be noticed that mastery experience is a common predictor of sixth, seventh, and eighth graders' self-efficacy belief. While, vicarious experience and physiological state predict only sixth graders' self-efficacy beliefs;

**Table 5.**  
*Table of ANOVA for Grade Level*

Factor	Class	$\bar{X}$	Sd	F	Difference	Effect Size
Mastery Experience	6	4.709	0.523	3.932*	Between sixth and eighth graders, in favor of the sixth graders	0.008
	7	4.654	0.560			
	8	4.586	0.545			
Vicarious Experience	6	4.209	0.930	7.945*	Between sixth and eighth graders, in favor of the sixth graders	0.016
	7	4.073	0.916			
	8	3.915	0.888			
Social Persuasion	6	4.740	0.503	9.947*	Between eighth and sixth graders and seventh grader, in favor of the sixth and seventh graders	0.020
	7	4.222	0.586			
	8	4.550	0.659			
Physiological State	6	4.453	0.812	1.204*	-	
	7	4.536	0.667			
	8	4.509	0.614			

\* $p<0.05$

**Table 6.**  
*Table of Correlation and Regression for Grade Level*

	Six			Seven			Eight		
	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t
Mastery Experience	0.597**	0.357	10.918	0.583**	0.340	9.319	0.695**	0.481	12.487
Vicarious Experience	0.350**	0.022	2.473	0.306**	-		0.320**	-	-
Social Persuasion	0.335**	-	-	0.465**	0.026	3.882	0.480**	0.009	2.363
Physiological State	0.282**	0.010	2.221	0.320**	-		0.302**	-	-
Total		0.389			0.366			0.490	

Dependent variable: Self-efficacy related learning and performance; R<sup>2</sup>= Explained variance by each variable; r= Correlation coefficient; \*\*  $p<0.01$

There is a significant difference between the opinions of the sixth graders about that mastery experience ( $\bar{X}_{\text{six}}$ : 4.709;  $\bar{X}_{\text{eight}}$ : 4.586), vicarious experience ( $\bar{X}_{\text{six}}$ : 4.209;  $\bar{X}_{\text{eight}}$ : 3.915), and social persuasion ( $\bar{X}_{\text{six}}$ : 4.740;  $\bar{X}_{\text{eight}}$ : 4.550) and the opinions of the eighth graders to the favor of the former. The only significant difference was between seventh ( $\bar{X}$ : 4.722) and eighth graders' opinions ( $\bar{X}$ : 4.550) about that social persuasion, which is to the favor of former. In other words, sixth graders stated more often than eighth graders did that

social persuasion predicts seventh and eighth graders' opinions significantly.

### Socio-Economic Status (SES)

This section examines whether or not students' opinions about the sources of self-efficacy belief change depending on their SES. As a result of the statistical analysis, it was found that students' opinions about the sources of self-efficacy belief change depending on their SES (Wilk's Lambda=

0.976,  $F= 2.932$ ,  $p<0.05$ ). In order to determine difference in which factor, ANOVA was conducted. The findings are presented in the Table 7.

### Learning Style

This study also aimed to identify the relationship between students' opinions about the sources

**Table 7.**  
*Table of ANOVA for SES*

Factor	SES	$\bar{X}$	Sd	F	Difference	Effect Size
Mastery Experience	High	4.776	0.371	5.918*	Between high and low, in favor the high	0.012
	Medium	4.671	0.538			
	Low	4.591	0.583			
Vicarious Experience	High	3.957	0.971	1.331	-	
	Medium	4.068	0.919			
	Low	4.085	0.903			
Social Persuasion	High	4.767	0.414	1.728	-	
	Medium	4.673	0.610			
	Low	4.654	0.587			
Physiological State	High	4.633	0.546	2.093	-	
	Medium	4.492	0.718			
	Low	4.645	0.715			

\* $p < 0.05$

When the Table 7 is examined, it will be noticed that, among the sources of self-efficacy belief of students, only opinions about mastery experience change depending on their SES; and opinions about other sources do not change according to their SES. The difference between students' opinion about mastery experience is significant between students with low SES ( $\bar{X}_{4.591}$ ) and high SES ( $\bar{X}_{4.776}$ ), in favor of students with high SES. That is, students with high SES stated more often that mastery experience increases their self-efficacy beliefs.

When the Table 8 is examined, it will noticed that while mastery experience, vicarious experience and social persuasion are predictors of low SES students' self-efficacy belief; predictors of self-efficacy of the students with medium SES are mastery experience and social persuasion. The predictors of self-efficacy of students with high SES are mastery experience and vicarious experience. Physiological state isn't a predictor of any level.

of self-efficacy belief and their learning styles. "Pearson product-moment correlation coefficient" was presented in Table 9.

When the Table 9 is examined, it will be noticed that kinesthetic learning has the strongest relationship with vicarious experience scores. The study obtained quite close values between kinesthetic learning style and other factors as well. Mean scores of students' visual learning style has the strongest relationship with the vicarious experience and mastery experience factors. Moreover, mean scores of students' auditory learning style has the strongest relationship with social persuasion factor.

**Table 8.**  
*Table of Correlation and Regression for SES*

	Low			Medium			High		
	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t	r	R <sup>2</sup>	t
Mastery Experience	0.597**	0.357	8.946	0.667**	0.445	15.117	0.490**	0.240	4.368
Vicarious Experience	0.389**	0.026	3.542	0.292**	-	-	0.437**	0.084	3.477
Social Persuasion	0.422**	0.009	2.257	0.468**	0.009	2.933	0.402**	-	-
Physiological State	0.325**	-	-	0.250**	-	-	0.316**	-	-
Total		0.392			0.452			0.309	

Dependent variable: Self-efficacy related learning and performance; R<sup>2</sup>= Explained variance by each variable; r= Correlation coefficient; \*  $p < 0.01$

**Table 9.**  
*Table of Correlation Between Learning Styles and Sources of Self-Efficacy*

	Kinesthetic	Visual	Auditory
Mastery Experience	0.223**	0.291**	0.093**
Vicarious Experience	0.257**	0.299**	0.126**
Social Persuasion	0.223**	0.263**	0.289**
Physiological State	0.233**	0.238**	0.140**

\*\* $p < 0.01$

## Discussion

This study aimed to determine whether or not students' opinion about the sources self-efficacy belief and predictive power of these sources on self-efficacy related learning and performance changes depending on their gender, academic achievement, grade level, SES, and learning style.

At the end of study, it was found that students' opinions about the sources of self-efficacy belief change depending on their gender. Female students stated more often than male students did that mastery experience, social persuasion, and physiological state increase their self-efficacy beliefs related learning and performance. Various studies were conducted in order to determine whether or not students' means as to sources of their self-efficacy beliefs change depending on their gender. Klassen (2004), Lent et al. (1991), Matsui et al. (1990), and Stevens et al. (2007) found that the sources of self-efficacy belief did not change depending on gender. In this study, female students stated more often than males that mastery experience increases their self-efficacy belief. This finding contradicts with the findings of other researches. In studies carried out by Britner and Pajares (2006), Hampton and Mason (2003), Joet et al. (2011), Lent et al. (1996) and found that the mean scores of mastery experience for male students were higher than that of female students. Such results could be attributed to the cultural differences since study populations were different. According to the findings of the study, students' opinions about that their vicarious experience increase their self-efficacy belief means does not change depending on their gender. While the study of Joet et al. found that the means of vicarious experience do not change depending on gender; Lent et al. (1996), Lopez et al. (1997) and Usher and Pajares' (2006b) studies, in contrast to the findings of this study, found that the female students' means of vicarious experience are higher than male students. Furthermore, students' opinions about social persuasion changed

depending on their gender. Female students stated more often than male students that social persuasion increases their self-efficacy beliefs related learning and performance. In studies conducted by Lent et al. (1996), Lopez and Lent (1992), Lopez et al. (1997) and, Usher and Pajares (2006b) it was found that while the means of female students for social persuasion are higher than male students, Joet et al. (2011) and Smith (2001) found that male students' means for social persuasion were higher than that of female students. It was also found that students' physiological state increases their self-efficacy related learning and performance change depending on their gender and that female students stated more often that physiological state increases self-efficacy belief. There are similar studies to this study that reached the same findings. In studies conducted by Britner and Pajares (2006), Joet et al. (2011) and Smith (2001), the means of female students for physiological state were found to be higher than that of male students.

Along with the relationship between students' opinions about the sources of self-efficacy and their gender, the study examined the predictive power of these factors for self-efficacy related learning and performance from the perspective of different gender categories. While mastery experience and vicarious experience predict the self-efficacy related learning and performance significantly for both male and female students; social persuasion was a predictor for only male students. Physiological state, on the other hand, was not a predictor for either male or female students. In the light of these findings, it can be stated that mastery experience and vicarious experience are appropriate in increasing the self-efficacy beliefs of both male and female students; social persuasion is appropriate for male students; and that physiological state isn't appropriate for neither female students nor male students. While Usher and Pajares (2006a) found that the predictors of self-efficacy of male students were mastery experience and physiological state; the predictors of self-efficacy of female students are social persuasion along with the previous two factors. In another study by Usher and Pajares (2006b), it was found that mastery experience and social persuasion significantly predict both male and female students' self-efficacy and the physiological state was the predictor of the self-efficacy beliefs of only male students. Stevens et al. (2007), on the other hand, found that mastery experience, vicarious experience, and social persuasion predict 18% of the self-efficacy beliefs of male students and 15% of that of female students.

In Zeldin and Pajares' (2000) study as well, social persuasion and vicarious experience are important sources of females' self-efficacy beliefs.

Also it was found that the students' opinions about the sources of self-efficacy belief change depending on their academic achievements. High achievers stated more often than medium and low achievers that mastery experience, social persuasion, and vicarious experience increase their self-efficacy beliefs related learning and performance. In terms of vicarious experience, there was a significant difference only between students with high and low achievers. In comparison to low achievers, medium achievers as well stated more often that mastery experience, social persuasion, and physiological state increase their self-efficacy beliefs related learning and performance. While mastery experience and vicarious experience significantly predict the self-efficacy beliefs of high and low achievers, it was found that these factors might be added the social persuasion for medium achievers. In the light of these findings, it was concluded that mastery experience and vicarious experience are effective in increasing self-efficacy beliefs of high and low achievers; mastery experience and social persuasion are more suitable for medium achievers. In their study Usher and Pajares (2006b) found that the predictors of the self-efficacy beliefs of high achievers are mastery experience and physiological state; the predictors of the self-efficacy beliefs of medium achievers are mastery experience and social persuasion; and none factor predicted the self-efficacy beliefs of low achievers.

Students' opinions about the sources of self-efficacy belief change depending on grade levels. Sixth graders stated more often than eighth graders that mastery experience, vicarious experience, and social persuasion increase their self-efficacy beliefs related learning and performance. Only the opinions of seventh graders about social persuasion were found to be significantly higher than eighth graders. The opinions of sixth and seventh graders show similarity in terms of the sources of self-efficacy belief. Only the students' opinions about that the physiological state did not significantly change depending on grade levels. While the self-efficacy beliefs of sixth graders were predicted by mastery experience, vicarious experience and physiological state, the self-efficacy beliefs of seventh and eighth graders were predicted by mastery experience and social persuasion. According to this result, while the mastery experience is the factor that is to be considered in terms of increasing the self-efficacy

beliefs of students of all grades, these factors must be added vicarious experience and physiological state factors for sixth graders. For seventh and eighth graders, students' self-efficacy beliefs can be increased through social persuasion as well as mastery experience.

Students with different SES differ in their opinions about that the mastery experience factor. Students with higher SES stated more often than those with lower SES that mastery experience increases their self-efficacy beliefs. Whereas the predictors of the self-efficacy beliefs of students with low SES are mastery experience, vicarious experience, and social persuasion; the predictors of the self-efficacy beliefs of students with medium SES are mastery experience and social persuasion. The predictors of the self-efficacy beliefs of students with high SES are mastery experience and vicarious experience. According to this, while mastery experience is effective for all three student groups in increasing self-efficacy belief; social persuasion is appropriate for students with low and medium SES. Vicarious experience, on the other hand, is an appropriate for students with low and high SES. Physiological state is not an effective in increasing the self-efficacy belief for any of the three SES levels.

This study investigated the relationship between the sources of the self-efficacy belief and learning styles in order to determine ways for increasing self-efficacy belief suitable for these learning styles. Among other learning styles, the most suitable way for students with kinesthetic learning style is mastery experience; the other factors also showed a similar correlation value. The most effective way to increase the self-efficacy beliefs of students with visual learning style is vicarious experience. The reason is that in the vicarious experience factor students observe their friends in their environment. Mastery experience as well might be considered as a factor that increases the self-efficacy beliefs of visual students. It can be stated that the most effective way to increase the self-efficacy beliefs of auditory students is social persuasion.

### Recommendations

1. Mastery experiences and vicarious experiences are effective for boys and girls, so should be used to increase self-efficacy of boys and girls. Social persuasion is effective only for boys.
2. Mastery experiences and vicarious experiences are effective for high and low achievers, so should be used to increase self-efficacy of both.

Mastery experience and social persuasion are effective for medium achievers.

3. Mastery experience and social persuasion are effective for seven and eight graders, so should be used to increase self-efficacy of seven and eight graders. Mastery experience, vicarious experience and psychological state should be used for sixth graders.

Mastery experiences, vicarious experience and social persuasion are effective for students with low SES so should be used to increase self-efficacy of these. Mastery experience and social persuasion are effective for student with medium SES, so should be used to increase self-efficacy of these. Mastery experiences and vicarious experience are effective for students with high SES, so should be used to increase self-efficacy of these.

4. All sources of self-efficacy is correlated with kinesthetic and visual learners, so should be used to increase self-efficacy of kinesthetic and visual learners. Social persuasion is correlated with auditory learners, so should be used to increase self-efficacy of these.

Similar studies should be conducted for specific domains and on elementary, high, and university students.

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